

Droplet-Sizing Liquid Water Content Sensor, Phase II

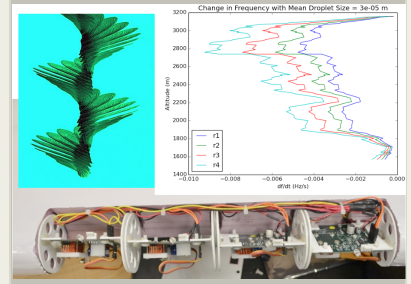
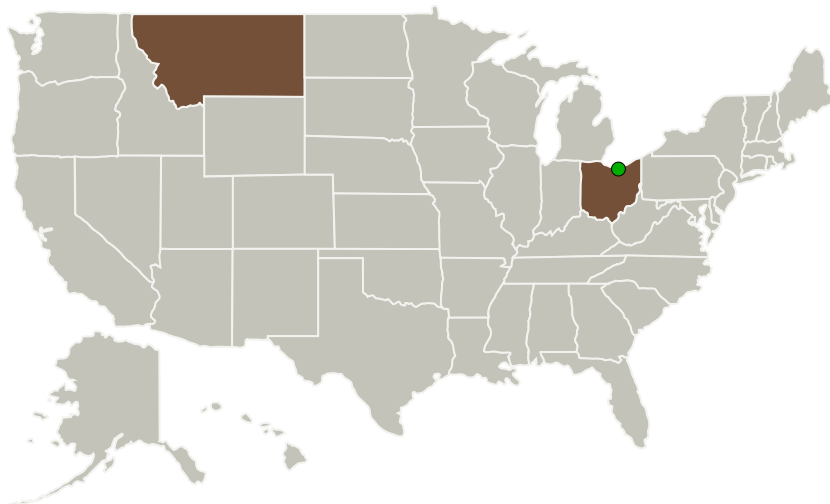
Completed Technology Project (2014 - 2016)



Project Introduction

Icing is one of the most significant hazards to aircraft. A sizing supercooled liquid water content (SSLWC) sonde is being developed to meet a directly related need for in-situ measurements of both total supercooled liquid water content and droplet size distribution. This data will support the development of remote sensing instrumentation to detect icing conditions, support aircraft certification activities for flight into known icing conditions, and support the development of new icing-related operational weather forecast products. Phase I demonstrated the feasibility of the SSLWC sonde's measurement technique. The sonde airframe was designed, built, and tested, mathematical models relating the sonde's raw data to the target variables were completed, a data processing algorithm was developed and implemented, and a proof-of-concept sonde was built. Phase II will involve refining the sonde design, adapting the mathematical algorithms into their final application environments, conducting additional studies of sonde elements in an icing wind tunnel, and undertaking two field missions to obtain intercomparison data between the SSLWC sonde and other accepted approaches to such measurements. At the end of Phase II, the SSLWC sonde will be proven to the point that it can be marketed with confidence for the application areas outlined above.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Anasphere, Inc.	Lead Organization	Industry	Belgrade, Montana
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations

Montana	Ohio
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Project Transitions

▶ **April 2014:** Project Start

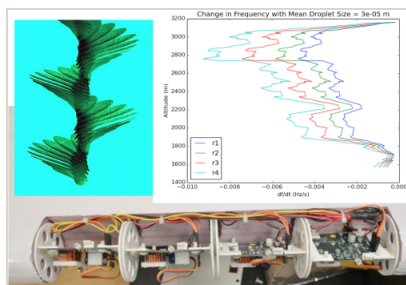
✓ **April 2016:** Closed out

Closeout Summary: Droplet-Sizing Liquid Water Content Sensor, Phase II Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/137641>)

Images

**Briefing Chart Image**

Droplet-Sizing Liquid Water Content Sensor, Phase II
(<https://techport.nasa.gov/image/131018>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Anasphere, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

John A Bognar

Co-Investigator:

John Bognar

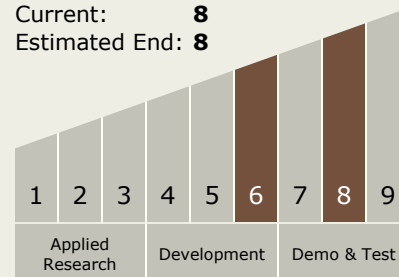
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Technology Maturity (TRL)

Start: 6
Current: 8
Estimated End: 8



Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.8 Ground and Flight Test Technologies

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System